

(B) Starting on a separate page, appropriate remarks and arguments.

37 C.F.R. § 1.121 and MPEP 714; and

(C) Starting on a separate page, a marked-up version entitled: "Version with markings to show changes made."

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

### *Amendments*

#### *In the Claims:*

A clean set of all pending claims is provided below.

1. An assay for an analyte, comprising specifically associating the analyte with a thermostable reporter kinase, adding ADP and testing for formation of ATP wherein, prior to addition of ADP, endogenous kinase other than reporter kinase is substantially removed by washing and the residual endogenous kinase is inactivated by heating.

2. The assay of Claim 1, wherein the amount of reporter adenylate kinase specifically associated with the analyte is substantially proportional to the amount of analyte.

3. The assay of Claim 1 wherein formation of ATP is measured using luciferin/luciferase.

4. The assay of Claim 1 for determining presence and/or amount of an analyte in a sample, comprising

    exposing the sample to a reporter adenylate kinase coupled to a binding agent specific for the analyte, so that the reporter adenylate kinase is specifically associated with any analyte present in the sample;

    removing reporter adenylate kinase that is not specifically associated with analyte;

    exposing reporter adenylate kinase specifically associated with the analyte to ADP; and

    testing for formation of ATP,

    wherein prior to addition of ADP residual adenylate kinase other than reporter adenylate kinase is substantially removed by heating.

5. The assay of Claim 1 comprising adding an ATPase to the analyte and removing the ATPase from the analyte prior to adding ADP.

6. The assay of Claim 5 wherein the ATPase is inactivated by heating the ATPase.

7. A reagent kit for determining the presence and/or amount of analyte in a sample comprising:

a solid phase on which is immobilised the analyte or an antibody specific for the analyte;

a reporter composition comprising a thermostable adenylate kinase coupled to an antibody specific for the analyte; and

ADP plus associated reagents for conversion of ADP into ATP by thermostable adenylate kinase.

8. The kit of Claim 7 further comprising an ATPase.

9. An assay for determining presence and/or amount of an analyte in a sample, comprising:-

exposing the sample to a detector composition, the detector composition comprising an antibody specific to the analyte coupled to a thermostable enzyme;

isolating (i) detector composition that has specifically bound to analyte from (ii) detector composition that has not specifically bound to analyte;

determining the presence and/or amount of detector composition that has bound to analyte by adding a substrate for the thermostable enzyme;

wherein prior to adding the substrate non-thermostable enzymes are destroyed by application of heat.

10. The assay of Claim 9, wherein substrate is converted into product by the thermostable enzyme and prior to addition of the substrate background compound identical to the product is removed.

11. The assay of Claim 10 wherein background compound identical to the product is removed by the action of enzyme or by thermal inactivation.

12. A conjugate comprising an antibody conjugated to a thermostable enzyme for use in the assay of Claim 1.

13. The conjugate of Claim 12, wherein the enzyme is an adenylate kinase.

14. The conjugate of Claim 12, wherein the antibody binds to an analyte selected from the group consisting of a protein, a microorganism, a peptide, a toxin, a hormone and a metabolite.

15. The conjugate of Claim 14 wherein the antibody binds to a prion protein.

17. A conjugate comprising an antibody conjugated to a thermostable enzyme for use in the assay of Claim 11.

18. A conjugate comprising an antibody conjugated to a thermostable adenylate kinase, wherein the antibody binds to a prion protein.

19. An assay for an analyte, comprising the steps:-

- (a) specifically associating the analyte with a thermostable reporter kinase;
- (b) washing to remove endogenous non-thermostable kinase and thermostable reporter kinase not specifically associated with the analyte;
- (c) heating to inactivate endogenous non-thermostable kinase not removed by step (b); and
- (d) adding ADP and testing for formation of ATP.